



Republic of Lebanon

Ministry of Environment

Beirut, 16 November 2017

Circular No. 7/1
Amending Circular No. 8/1 dated 16/11/2015 on
Guidelines Concerning the Integrated Management of Domestic Solid Waste
to the Attention of Municipalities, Unions of Municipalities, Caimacams and Governors

Considering the importance given by the Ministry of Environment to the reduction of waste production, reuse and recovery to the greatest possible extent as per the guidelines provided in the Ministry's Circular No. 8/1 dated 16/11/2015,

Taking into consideration the developments in the recycling sector over the past two years,

The three annexes to Circular No. 8/1 dated 16/11/2015 including guidelines on municipal solid waste sorting at source, a list of the centers that use recyclable materials and their addresses, and some guidelines on composting shall be replaced by Annexes 1, 2 and 3 enclosed therein.

The Ministry of Environment encourages both public and private sectors to activate waste sorting at source practices, and the use of recycled products under the condition that these products meet the required technical, environmental and health conditions and standards. Accordingly, annex No. 4 enclosed therein, presents some of the positive environmental impacts related to sorting at source and use of recycled products.

Concerning sorting at source, the Ministry of Environment encourages the use of either a three-bin or a four-bin system based on Annex No. 1 enclosed therein.

For more information, you can contact the Ministry of Environment on the following numbers: 01-976513 or 01-976555 (ext. 402 or 477).

In the hope of a continuous cooperation for the good of the environment in Lebanon and the health of the Lebanese.

Tarek El Khatib
Minister of Environment

Encl.: Annex (1): Some guidelines related to sorting at source of municipal solid waste
Annex (2): Updated list of the centers that use recyclable materials and their addresses
Annex (3): Some guidelines related to composting
Annex (4): Positive environmental impacts resulting from sorting at source and the scope of using recycled materials

**Annex 1 to the Circular of the Minister of the Environment No. 7/1 dated 16 November 2017
Some Guidance on the Process of Sorting Municipal Solid Waste at Source**

A- Types of Waste:

Waste types vary depending on the source; this document is dedicated to municipal solid waste, namely waste generated in houses, schools, universities, hotels, restaurants, shops and offices, as well as non-hazardous waste generated by industrial enterprises, hospitals and other health institutions.

B- Composition of the Municipal Solid Waste:





Municipal solid waste consists of:

Component	Type	Use
Organic waste	Food leftovers, fruits, vegetables, garden waste, tree leaves, tissues and small papers	- Recycling (composting)
Plastic	Nylon (PA), Polycarbonate (PC), Polyester (PS), Polyethylene (HDPE, LDPE, PET), Polypropylene (PP), Polystyrene (PS), Polyurethane (PU), Polyvinyl chloride (PVC), Polyvinylidene chloride (PVDC), Acrylonitrile Butadiene Styrene (ABS).	- Recycling - Alternative fuel - Sanitary landfill
Paper	Paper, cardboard, tissues, newspapers, etc.	- Recycling - Alternative fuel
Metals	Iron, tin, zinc, copper, steel, aluminum, lead, stainless steel, bronze, etc.	- Recycling
Glass	Frosted glass, Pyrex glass, flat glass, lead glass, borosilicate glass, fiberglass, etc.	- Recycling - Alternative fuel
Textiles	Wool, silk, cotton, linen, nylon, polyester, etc.	- Recycling - Alternative fuel - Sanitary landfill
Electronics	Computers, radios, TVs, calculators, phones (wireless and wired), etc.	- Recycling - Sanitary landfill
Non-recyclable waste (refuse)	Any other non-recyclable waste, such as diapers, aluminum foil, cigarette butts, etc.	- Sanitary landfill (possible partial use as alternative fuel)




C- Waste classification and recycling bin colors:

Based on the waste components presented in the table above, the Ministry of Environment encourages all those interested to sort waste at source to do it using either the three or the four categories system (with preference to the four categories system), as per the categories and colors shown in the tables below:

1- Four categories: Waste shall be segregated as follows:

Component	Color	Motives for segregation
Organic waste	Green 	Organic waste may be subject to contamination by chemical residues resulting from oils, detergents, acid (batteries), etc. This type of contamination decreases the value of this waste as soil enhancer upon composting due to the possible damage they might cause to plants and fruits.
Paper	Blue 	Paper materials might lose their value as recyclable materials if they are contaminated by other waste components.
Other recyclable waste	Red 	This category includes the remaining recyclable material (i.e. excluding paper and organic waste). These material are sorted in order to avoid their contamination by other components, thus reducing their pre-recycling treatment cost and increasing their value. These material may be sorted into three categories (material to be recycled, material with calorific value that can be used as alternative fuel, and Rejects/inert material to be landfilled).
Rejects/Inert	Grey 	These components include non-recyclable and non-reusable material. They are segregated so that they do not contaminate other substances. They are sent to sanitary landfills.

2- Three categories: Waste shall be segregated as follows:











Component	Color	Motives for segregation
Organic waste	Green 	Organic waste may be subject to contamination by chemical residues resulting from oils, detergents, acid (batteries), etc. This type of contamination decreases the value of this waste as soil enhancer upon composting due to the possible damage they might cause to plants and fruits.
Other recyclable waste	Red 	This category includes the remaining recyclable material (i.e. excluding paper and organic waste), as well as material with calorific value. Recyclable materials may be sorted, treated and recycled without losing much of their value. The same applies to materials with calorific value which are sorted and processed to be used as alternative fuel.
Refuse	Grey 	These components include non-recyclable and non-reusable material. They are segregated so that they do not contaminate other substances. They are sent to sanitary landfills.

Based on the color assigned to each category, the waste destination can be determined as follows:




































Color to adopt (Assigned color)	Destination
Green	Composting centers
Blue	Paper recycling centers
Red	Sorting centers
Grey	Sanitary landfills

3- Breakdown of recyclable materials and bin colors

Those interested to extend the scope of sorting at source to cover more recyclable material should use the following assigned colors:

Recyclable Materials	Color to adopt (Assigned color)
Metals	Purple 
Paper	Blue 
Transparent glass	White 
Brown glass	Brown 
Green glass	Olive Green 
Electronics	Orange 
Tires and rubber	Black 
Plastic	Yellow 
Wood	Burgundy 
Textiles	Indigo 

4- Additional details on recyclable materials:

Material	Item made of this material
Paper and cardboard	<ul style="list-style-type: none">  White paper adopted in offices and printing presses, newspapers, universities and schools  Paper bags  Packaging carton boxes  Corrugated cardboard
Plastic (various types)	<ul style="list-style-type: none">  Soft drinks bottles  Mineral water bottles  Juice bottles  Dairy products packaging  Ready-to-use cups and bowls  Bucket and packages  Nylon and plastic bags  Thin nylon for food packaging  Detergent bottles  Computer components (hard disk drives)  Tables and chairs  Electrical insulators
Tin, steel and aluminum	<ul style="list-style-type: none">  Soft drinks cans  Packaged food containers  Cooking utensils  Metal chips  Toolkits  Screws and nails
Glass	<ul style="list-style-type: none">  Transparent glass  Brown glass  Green glass  Multicolored glass
Textile	<ul style="list-style-type: none">  Worn clothes  Fabric  Old carpets  Kitchen linens
Electronic devices	<ul style="list-style-type: none">  Phones  Calculators  Batteries  Home electronic appliances  Computers

Remark:

It is recommended that each municipality allocates a plot of land within its municipal jurisdiction to sort and store recyclable material, and to equip it later on with a baler for paper, cardboard and plastics and with a shredder to reduce the volume of the sorted material, in order to facilitate their transfer to the centers that can process them as described in Annex 2.

For more details, please contact the Ministry of Environment at the following numbers:

01-976 513 or 01-976555 (ext. 402 or 477)

www.moe.gov.lb

**Annex 2 to the Circular of the Minister of the Environment No. 7/1 dated 16 November 2017
Updated List of Centers that Use Recyclable Materials and their Addresses**

Company	Location (Caza)	Phone	Activity	Nature of Service		Conditions	Other Activities
				Transport	Reception Center		
Paper and Cardboard Products							
Hussein Daher	Ouzai (Beirut)	03-498663 03-970906	Collection	NA	Ouzai	Sorted at source & sorting centers	Plastic
Run Waste	Jnah (Beirut)	03-901251	Collection	Beirut and Mount Lebanon	Jnah	Sorted at source	Plastic Metals Nylon
Recycle Beirut	Jnah (Beirut)	03-050170	Collection	Greater Beirut	Jnah	Sorted at source	Plastic Metals Glass Electronics
Zero Waste Act	Badaro (Beirut)	01-381381 03-508108	Collection	Private establishments and companies in Beirut, part of Metn (from the coastal area to Bekfaya), Keserwan coastal area, Jbeil coastal area	Badaro Sin El Fil	Sorted at source	Plastic Metals
L'Ecoute	Zokak el Blat	70-391908	Collection	Provided that there is an equivalence of 5 large bags wrapped in bags or baled	Zokak el Blat	Sorted at source	Metals Electronics Plastic Glass Nylon
Arc En Ciel	Baabda (Baabda) Taanayel (Zahle)	01-495561 Ext1418	Collection	Private establishments and companies in Beirut Zahle Taanayel	Baabda Jisr el Wati Taanayel	Sorted at source	Plastic Metals
Terre Liban	Baabda (Baabda)	05-923060	Collection	Beirut and Mount Lebanon (provided that there is a minimum of 100 kg)	NA	Sorted at source	
Solicar	Wadi Chahrour (Baabda)	05-940248	Recycling	Provided that there is a notable quantity baled	Kfarshima	Sorted at source from printing centers and specific companies	

Company	Location (Caza)	Phone	Activity	Nature of Service		Conditions	Other Activities
				Transport	Reception Center		
Paper and Cardboard Products (Cont'd 1)							
Sipco	Kfarshima (Baabda)	05-431048	Recycling	NA	Kfarshima	Sorted at source From printing centers and specific companies	
Unipack/ Tissue Mill	Halat (Jbeil)	09-477191	Recycling	NA	Halat	Sorted at source	
Baldati	Elissar (Metn)	04-922999	Collection	NA	Elissar (Upon availability of big quantities cardboard should be baled)	Sorted at source	Plastic Metals Glass Electronics
Bi Clean	Bekfaya (Metn)	04-980149	Collection	Within Bekfaya	Bekfaya to serve Bekfaya and neighboring towns	Sorted at source	Plastic Metals Organic Materials
Sicomo	Qab Elias (Zahle)	08-500550	Recycling	Provided that there are at least 2-3 tons of material baled	Qab Elias	Sorted at source & sorting centers	
Mimosa	Kaa el Rim (Zahle)	08-803052	Recycling	NA	Kaa el Rim	Sorted at source, from printing centers and cardboard factories	
Nidaa Al-Ard	Arab Salim (Nabatieh)	07-535510 03-935128	Collection	Jarju' Arab Salim	Arab Salim	Sorted at source	Plastic Metals Glass Electronics
Beam of the Environment Association (BEA)	Sarafand (Saida)	03-280218	Collection	Sarafand	Sarafand to serve Zahrani Caza	Sorted at source	Plastic Metals Glass Electronics
RecoPack	Chekka (Batroun)	03-789611	Recycling	Between Baabda and Chekka	NA	Sorted at source	Plastic
Plastic products							
Hussein Daher	Ouzai (Beirut)	03-498663 03-970906	Collection PET PP HDPE LDPE Nylon	NA	Ouzai provided that they are baled or packed inbags	Sorted at source & sorting centers	Paper and cardboard
Run Waste	Jnah (Beirut)	03-901251	Collection PET PE PP Nylon	Beirut and Mount Lebanon	Jnah	Sorted at source	Paper Cardboard Metals

Company	Location (Caza)	Phone	Activity	Nature of Service		Conditions	Other Activities
				Transport	Reception Center		
Plastic products (Cont'd 1)							
Recycle Beirut	Jnah (Beirut)	03-050170	Collection various types of plastic	Greater Beirut	Jnah	Sorted at source	Paper and cardboard Metals Glass Electronics
Zero Waste Act	Badaro (Beirut)	01-381381 03-508108	Collection PET PS HDPE PP LDPE Nylon	Private establishments and companies in Beirut, Part of Metn (from the coastal area to Bekfaya), Keserwan coastal area, Jbeil coastal area	Badaro Sin El Fil	Sorted at source	Paper and cardboard Metals
Abbad Al Rahman	Barbour (Beirut)	03-004764	Collection PET caps	NA	Barbour	Sorted at source	
L'Ecoute	Zokak el Blat (Beirut)	70-391908	Collection PET PE Nylon	Provided that there is an equivalence of 5 large bags wrapped in bags or baled	Zokak el Blat	Sorted at source	Metals Electronics Plastic Glass
Arc En Ciel	Baabda (Baabda) Taanayel (Zahle)	01-495561 Ext1418	Collection	Private establishments and companies in Beirut Zahle Taanayel	Baabda Jisr el Wati Taanayel	Sorted at source	Paper and cardboard Metals
Rocky Plast	Jbeil (Jbeil)	03-634400	Recycling PET PE PP	Mount Lebanon South (provided that there is a minimum of 5 tons)	NA	Sorted at source & sorting centers	
Flower Plast	Halat (Jbeil)	09-440564 03-624660	Recycling HDPE LDPE PP	NA	Halat provided that materials are washed and shredded	Sorted at source & sorting centers	
Publitex	Baakline (Chouf)	03-607678	Recycling HDPE LDPE PP	Provided that there is a minimum of 2 tons	Baakline	Sorted at source & sorting centers	
Ali Shaaban	Choueifat (Aley)	03-220811	Collection PE PP	Provided that there are sufficient quantities	NA	Sorted at source & sorting centers	

Company	Location (Caza)	Phone	Activity	Nature of Service		Conditions	Other Activities
				Transport	Reception Center		
Plastic products (Cont'd 2)							
Equiplast	Nahr Ibrahim (Keserwan)	03-389867	Recycling nylon	Providing the service	Nahr Ibrahim	Sorted at source provided that the material result exclusively from the refuse of nylon manufacturing	
Plastic Wood	Sin el Fil (Metn)	01-491152	Collection PET	NA	Sin el Fil	Sorted at source & sorting centers	
Baldati	Elissar (Metn)	04-922999	Collection PET LDPE PP HDPE PS Nylon	NA	Elissar provided that there is prior coordination, especially in case of large quantities	Sorted at source	Paper and cardboard Metals Glass Electronics
Bi Clean	Bekfaya (Metn)	04-980149	Collection various types of plastic	Within Bekfaya	Bekfaya to serve Bekfaya and neighboring towns	Sorted at source	Paper and cardboard Metals Organic Materials
TH-production	Baskinta (Metn)	71-288671	Collection HDPE PET LDPE Nylon	Provided that there is a minimum of one ton	Baskinta	Sorted at source	
DSM	Jdeideh (Metn)	01-875567	Collection all types of plastic	Providing the service	Jdeideh	Sorted at source	Metals Rubber Electronics
Cedar Environmental	Bou Mizan (Metn)	03-293222	Collection all types of plastic	NA	Beirut		Plastic
Lebanese Recycling Works (Debs)	Roumieh (Metn)	01-890383	Recycling PET PP LDPE PS HDPE Nylon	Provided that there is a minimum of 800 Kg for Beirut, the North and Metn. They should be packed (shredded, baled or loose) based on their type	Roumieh Tripoli Seriine Provided that they are packed (shredded, baled or loose) based on their type	Nylon: Sorted at source Plastic: Sorted at source & sorting centers	
Chreck	Jdeideh (Metn)	71-499732	Collection PET	NA	Jdeideh	Sorted at source	Metals
Samir Khalil Establishment	Dekwaneh (Metn)	03-904239	Collection of transparent nylon	Beirut and Mount Lebanon provided that there are more than 200 KG	Dekwaneh	Sorted at source, exclusively by companies, establishments and shops	

Company	Location (Caza)	Phone	Activity	Nature of Service		Conditions	Other Activities
				Transport	Reception Center		
Plastic products (Cont'd 3)							
Kilzi & Co	Fanar (Metn)	01-872133	Collection PS	Provided that they are washed and not painted	Fanar Provided that they are washed and not painted		
Nassif Rizkallah Abou Jaoude	Jal el Dib (Metn)	03-680073	Collection LDPE PP HDPE	NA	Jal el Dib	Sorted at source, exclusively by associations	
International Nylon Recycling Company	Seriine (Baalbek)	03-625144	Recycling nylon	Provided that there is a sufficient quantity of PE baled	Seriine	Sorted at source & sorting centers	
Lefico	Riyyaq (Zahle)	08-921222	Recycling PET	Transportation of materials from previously agreed with municipalities and entities	Riyyaq	Sorted at source	
Fouad Shatawi	Zahle (Zahle)	03-372119	Collection PE PET	Provided that there is a minimum of 4 tons	NA	Sorting centers	
Mazar Plast	Qab Elias (Zahle)	08-500623 03-843929	Recycling PET PP	Transportation of materials from previously agreed with plants and companies	NA	Sorted at source	
Medio Plast	Taanayel (Zahle)	03-487197	Recycling HDPE PP LDPE	Provided that there are 4 to 5 tons of baled or shredded material	Taanayel	Sorted at source & sorting centers	
Yaakoub Plast	Taanayel (Zahle)	76-344614	Recycling Nylon	Provided the availability of at least 5 Tons	Taanayel	Sorted at source & sorting centers	
Baza Plast	Ain Baal (Tyre)	07-376376 03-780282	Recycling PET PVC HDPE PP LDPE	Provided that there is a minimum of 1 ton	Ain Baal	Sorted at source & sorting centers	
Ahmad/ Muhammad Khalife	El Zahrani (Saida)	76-545352 03-463973	Collection PET HDPE PP LDPE	Provided that they are packed as follows: PET: baled PE & PP: baled or shredded	El Zahrani Ghazieh Nabatieh	Sorted at source & sorting centers	Metals
Contractor Hasan Kashakesh	Ghazieh (Saida)	71-410600	Various types of plastic	Providing the service	NA	Sorted at source & sorting centers	Metals

Company	Location (Caza)	Phone	Activity	Nature of Service		Conditions	Other Activities
				Transport	Reception Center		
Plastic products (Cont'd 4)							
Beam of the Environment Association (BEA)	Sarafand (Saida)	03-280218	Collection various types of plastic	Sarafand	Sarafand to serve Zahrani Caza	Sorted at source	Cardboard Metals Glass Electronics
Yahia El Hariri	Saida (Saida)	07-732190 03-247790	Recycling PET HDPE PP LDPE PS Nylon	South and Beirut provided that there is at least 1 ton in the South and 2,5 tons in Beirut	Saida	Sorted at source & sorting centers	Metals Electronics
El Hayek Establishment	Froun (Nabatieh)	03-311971	Collection various types of plastic	Providing the service	Froun	Sorted at source & sorting centers	Metals
Nidaa Al-Ard	Arab Salim (Nabatieh)	07-535510 03-935128	Collection various types of plastic	Jarju' Arab Salim	Arab Salim	Sorted at source	Paper and cardboard Metals Glass Electronics
RecoPack	Chekka (Batroun)	03-789611	Recycling various types of plastic	Between Baabda and Chekka	NA	Sorted at source	Paper and cardboard
Tire Products							
DSM	Jdeideh (Metn)	01-875567	Collection	Providing the service	Jdeideh	Sorted at source	Metals Plastic Electronics
Green Lebanon	Zahle (Zahle)	03-309620 03-686876 03-960710	Recycling truck tires Radial	Exclusively to tire shops (provided that there are more than 100 tires)	NA	Sorted at source	
OLA 3R	Toul (Nabatieh)	03-977041 07-975313	Recycling	Provided that there are more than 200 tires	Toul	Sorted at source & sorting centers	
Metal Products							
Run Waste	Jnah (Beirut)	03-901251	Collection various types of metal	Beirut and Mount Lebanon	Jnah	Sorted at source	Plastic Paper and cardboard Nylon
Recycle Beirut	Jnah (Beirut)	03-050170	Collection batteries	Greater Beirut	Jnah	Sorted at source	Plastic Paper and cardboard Glass Electronics

Company	Location (Caza)	Phone	Activity	Nature of Service		Conditions	Other Activities
				Transport	Reception Center		
Metal Products (Cont'd 1)							
Zero Waste Act	Badaro (Beirut)	01-381381 03-508108	Collection	Private establishments and companies in Beirut, Part of Metn (from the coastal area to Bekfaya), Keserwan coastal area, Jbeil coastal area	Badaro Sin El Fil	Sorted at source	Plastic Metals
Sharmetal	Shatila (Beirut)	01-823675 01-823676	Recycling aluminum, iron, lead, bronze and zinc	Provided that there is more than one ton	NA	Sorted at source & sorting centers	
L'Ecoute	Zokak el Blat (Beirut)	70-391908	Collection	Provided that there is an equivalence of 5 large bags wrapped in bags or baled	Zokak el Blat	Sorted at source	Cardboard Electronics Plastic Glass Nylon
Berjawi Establishment	Jnah (Beirut)	01-820734	Collection various types of metal	NA	Jnah	Sorted at source	
Arc En Ciel	Baabda (Baabda) Taanayel (Zahle)	01-495561 Ext1418	Collection of aluminum and steel	Establishments and companies in Beirut Zahle Taanayel	Baabda Jisr el Wati Taanayel	Sorted at source	Plastic Paper and cardboard
Muhammad Moussa El Tawil & Sons	Choueifat (Aley)	05-482090	Collection of iron, aluminum, bronze, lead and copper	NA	Choueifat provided that there is a minimum of one ton sorted and segregated		
Baldati	Elissar (Metn)	04-922999	Collection various types of metal	NA	Elissar provided that there is prior coordination, especially in case of large quantities	Sorted at source	Plastic Paper and cardboard Glass Electronics
Bi Clean	Bekfaya (Metn)	04-980149	Collection various types of metal	Within Bekfaya	Bekfaya to serve Bekfaya and neighboring towns	Sorted at source	Plastic Paper and cardboard Organic Material
DSM	Jdeideh (Metn)	01-875567	Collection	Providing the service	Jdeideh	Sorted at source	Rubber Plastic Electronics

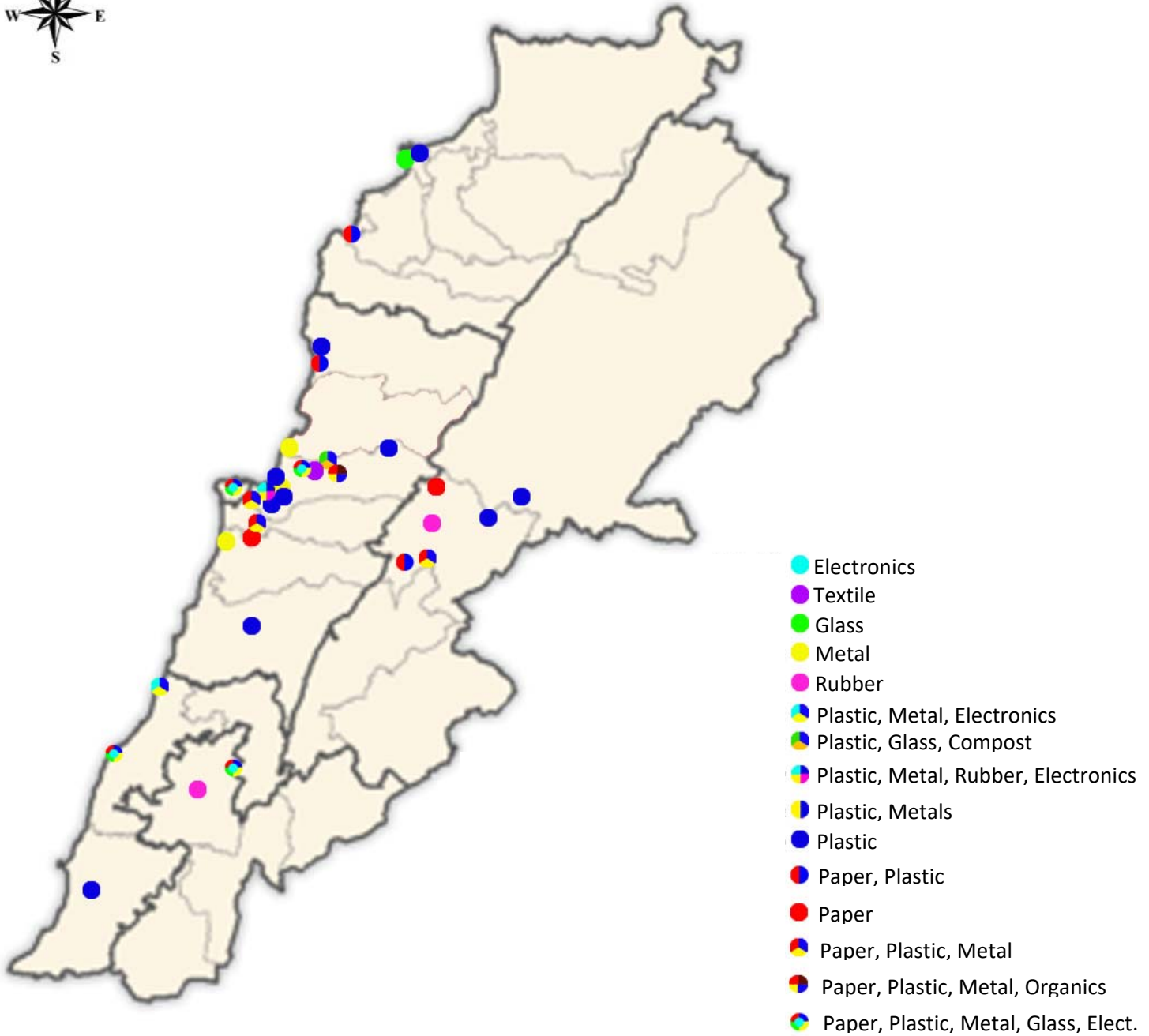
Company	Location (Caza)	Phone	Activity	Nature of Service		Conditions	Other Activities
				Transport	Reception Center		
Metal Products (Cont'd 2)							
Sidem	Zouk Mosbeh (Metn)	09-220163 09-220176	Recycling aluminum	NA	Zouk Mosbeh for specific clients	Sorted at source	
Garabed Babahekian	Borj Hammoud (Metn)	01-261029 01-444064	Recycling lead	NA	Borj Hammoud provided that material consist of lead alloys	Only lead alloys	
Chreek	Jdeideh (Metn)	71-499732	Collection various types of metal	NA	Jdeideh	Sorted at source	Plastic
Toni Srour	Dekwaneh (Metn)	03-582778	Collection various types of metal	Provided that there is more than 1,5 ton	Dekwaneh	Sorted at source & sorting centers	
Liban Fonderies	Nahr el Mot (Metn)	01-560455	Recycling various types of metal	Based on quantity and distance	Nahr el Mot	Sorted at source & sorting centers	
Ets. Carlo pour le commerce et l'industrie	Bauchrieh (Metn)	01-497100 03-888006	Recycling of copper	NA	Bauchrieh	Sorted at source (pipes and plumbing tools exclusively)	
Oreibi	Taanayel (Zahle)	08-510194	Recycling batteries	Providing the service provided that they are acid free	Taanayel provided that they are acid free	Sorted at source & sorting centers	
Mustafa Harqous	Taanayel (Zahle)	03-451005	Recycling various types of metals	Bekaa provided that there are at least 3 tons	NA	Sorted at sorting centers	
Beam of the Environment Association (BEA)	Sarafand (Saida)	03-280218	Collection	Sarafand	Sarafand to serve Zahrani Caza	Sorted at source	Plastic Paper and cardboard Glass Electronics
Yahia El Hariri	Saida (Saida)	07-732190 03-247790	Collection of iron, aluminum, bronze, zinc and copper	South and Beirut provided that there is 1 ton in the South and 2,5 tons in Beirut	Saida	Sorted at source & sorting centers	Plastic Nylon Electronics
Contractor Hasan Kashakesh	Ghazieh (Saida)	71-410600	Collection various types of metal	Providing the service	NA	Sorted at source & sorting centers	Plastic
El Hayek Establishment	Froun (Nabatieh)	03-311971	Collection various types of metals	Providing the service	Froun	Sorted at source and at sorting centers	Plastic
Nidaa Al-Ard	Arab Salim (Nabatieh)	07-535510 03-935128	Collection various types of metals	Jarju' Arab Salim	Arab Salim	Sorted at source	Plastic Paper and cardboard Glass Electronics

Company	Location (Caza)	Phone	Activity	Nature of Service		Conditions	Other Activities
				Transport	Reception Center		
Textile Products							
Conformat	Mtaileb (Metn)	04-910604	Recycling (cotton, wool and carpets)	Mtaileb and neighboring towns (provided that there is a minimum of 1,5 tons, wrapped in bags or baled)	Mtaileb provided that they are wrapped in bags or baled	Sorted at source	
Glass Products							
Recycle Beirut	Jnah (Beirut)	03-050170	Collection	Greater Beirut	Jnah	Sorted at source	Plastic Paper & cardboard Metals Electronics
L'Ecoute	Zokak el Blat (Beirut)	70-391908	Collection	Provided that there is an equivalence of 5 large bags wrapped in bags or baled	Zokak el Blat	Sorted at source	Cardboard Electronics Plastic Metals Nylon
Al Moulla Glass	Aamroussieh (Aley)	03-233097	Collection	Providing the service	NA	Sorting centers	
Baldati	Elissar (Metn)	04-922999	Collection	NA	Elissar provided that there is prior coordination, especially in case of large quantities	Sorted at source	Plastic Paper and cardboard Metals Electronics
Cedar Environmental	Bou Mizan (Metn)	03-293222	Collection	NA	Beirut		Plastic Manure
Al Zoujaj Al Yadawi	Sarafand (Saida)	03-906091	Recycling	NA	Sarafand	Sorted at source by previously agreed with entities	
Beam of the Environment Association (BEA)	Sarafand (Saida)	03-280218	Collection	Sarafand	Sarafand to serve Zahrani Caza	Sorted at source	Plastic Paper and cardboard Metals Electronics
Nidaa Al-Ard	Arab Salim (Nabatieh)	07-535510 03-935128	Collection	Jarju' Arab Salim	Arab Salim	Sorted at source	Plastic Paper and cardboard Metals Electronics
Glass United Company	Baddawi (Tripoli)	03-230247 06-389107	Recycling	Providing the service	Tripoli	Sorted at source & sorting centers	
Electronic Products							
Recycle Beirut	Jnah (Beirut)	03-050170	Collection	Greater Beirut	Jnah	Sorted at source	Plastic Paper and cardboard Glass Metals

Company	Location (Caza)	Phone	Activity	Nature of Service		Conditions	Other Activities
				Transport	Reception Center		
Electronic Products (Cont'd 1)							
L'Ecoute	Zokak el Blat (Beirut)	70-391908	Collection	Provided that there is an equivalence of 5 large bags wrapped in bags or baled	Zokak el Blat	Sorted at source	Cardboard Glass Plastic Metals Nylon
Baldati	Elissar (Metn)	04-922999	Collection	NA	Elissar provided that there is prior coordination, especially in case of large quantities	Sorted at source	Plastic Paper and cardboard Metals Glass
Be'atouna	Dora (Metn)	01-249653	Collection	Based on quantity and distance	Dora provided that there is prior coordination	Sorted at source	
DSM	Jdeideh (Metn)	01-875567	Collection	Providing the service	Jdeideh	Sorted at source	Rubber Plastic Metals
Beam of the Environment Association (BEA)	Sarafand (Saida)	03-280218	Collection	Sarafand	Sarfand to serve Zahrani Caza	Sorted at source	Plastic Paper and cardboard Metals Glass
Yahia El Hariri	Saida (Saida)	07-732190 03-247790	Collection	South and Beirut provided that there is at least 1 ton in the South and 2,5 tons in Beirut	Saida	Sorted at source and at sorting centers	Plastic Nylon Metals
Nidaa Al-Ard	Arab Salim (Nabatieh)	07-535510 03-935128	Collection	Jarju' Arab Salim	Arab Salim	Sorted at source	Plastic Paper and cardboard Glass Metals
Cooking Oil Products							
Run Waste	Jnah (Beirut)	03-901251	Collection	Provided that there is a minimum of 4 to 5 gallons	Jnah	Cooking oil from restaurants and hotels	
Oil. Co	Bslaim (Metn)	70-752766		Provided that it is packed in gallons	NA	Cooking oil from restaurants and hotels	
Biodiesel Lebanon	Nahr el Mot (Metn)	03-299192	Recycling	Beirut and Mount Lebanon provided that it is packed in gallons	Nahr el Mot	Cooking oil from restaurants and hotels	
Bio-oil	Jbeil (Jbeil)	03-012236	Recycling	Providing the service	NA	Cooking oil from restaurants and hotels	

Company	Location (Caza)	Phone	Activity	Nature of Service		Conditions	Other Activities
				Transport	Reception Center		
Motor Oil Products							
Medco	Achrafieh (Beirut)	1295	Reuse	Provided that it is packed in tanks provided by the company	NA	Motor oil used by gas stations and car garages	
Marwan Moulla	Choueifat (Aley)	03-353485	Collection	Providing the service	NA	Motor oil used by gas stations	
EcoLib	Chekka (Batroun)	06-542597 03-915713	Reuse	Providing the service	Chekka	Motor oil used by gas stations and fuel companies	
Abu Nassim		03-735824	Collection	Providing the service	NA	Motor oil used by gas stations	
Iso proof		70-114498	Collection	Providing the service	NA	Motor oil used by gas stations	
Matar		03-635148	Collection	Providing the service	NA	Motor oil used by gas stations	
Rafaat Nachabeh		70-444572	Collection	Providing the service	NA	Motor oil used by gas stations	

Lebanon's Map Illustrating the Locations of Solid Waste Recycling Centers



**For more details, please contact the Ministry of Environment on the following numbers: 01-976 513 or 01-976555 (ext. 402 or 477)
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Remark: This document was elaborated for guidance purposes; the Ministry of Environment does not assume any responsibility or liability that may arise from any violation related to the actions of the persons whose names appear on the list.



Annex 3 to the Circular of the Minister of the Environment No. 7/1 dated 16 November 2017 Guidelines Related to Composting

What is composting?

Composting is the process of fermenting organic material (i.e. food leftovers, vegetables and fruits, garden waste, tree leaves, shredded twigs, etc.). Composting is a process carried out by humans in order to convert organic material from waste into a soil enhancer.

The benefits of composting:

Composting is the easiest and least expensive way to dispose of food scraps and recycle organic waste. It also helps to improve the health and quality of soil through enriching it with oxygen, retaining moisture, attracting earthworms and reducing the usage of chemical fertilizers, as well as by preserving the environment by decreasing the amount of waste that requires final disposal.

What is compost?

It is a safe and ready-to-use soil enhancer that smells like soil but differs from organic fertilizers in that it contains less soil nutrients. Compost can be used in sports fields, parks, public and private squares, gardens, and nurseries and for the rehabilitation of quarries...

What can be composted?

- + Shredded twigs, leaves, herbs of all kinds, sawdust (source of carbon)
- + Olive cake, various types of straw and reeds (source of carbon)
- + Cardboard, paper, napkins and tissues (source of carbon)
- + Tea bags and coffee grinds (source of nitrogen)
- + Fruits and vegetables scraps, breads and grains, egg shells (source of nitrogen)
- + Manure from farm animals (source of nitrogen)
- + Remnants of meat, fish, poultry and dairy products

Some composting techniques:

- Composting techniques may be broken down into two main categories: open air composting and in-vessel composting. Some of the techniques used in each of these two categories are as follows:
 - open air composting
 - Windrow composting
 - Tunnel composting
 - Pile composting
 - Backyard composting
 - In-vessel composting
 - Small drum composting
 - Drum composting
 - Compartment/chamber composting
- Open air composting through open-air flows is the slowest yet simplest, least expensive, and least energy-consuming process.
- In-vessel composting is a costly process that requires accuracy and experience, yet it saves time and requires little space for composting

- Building a compost pile requires carbon-rich material as a source of energy, and nitrogen-rich material for protein synthesis in the cells of microorganisms within the compost. The mixture of acceptable proportions of these material is a critical success factor of the composting process.
- Moisture plays an important role in the fermentation process and the optimal ratio varies between 40 and 60%.
- Fermentation organisms need oxygen to live. The minimum percentage of oxygen required inside the compost pile to prevent the creation of anaerobic conditions and the emission of unpleasant odors is 5% while the optimum percentage is 10%.
- The highest composting rate occurs when temperatures are in the range of 43-66°C in order to eliminate insects, diseases and weed seeds.
- Particle size affects the composting process, therefore the surface area should be maximized by shredding and chipping waste into small pieces, as needed.
- The optimum pH range in composting lies between 6.5 and 7.5
- The best location to build the compost pile is out of direct sunlight and out of direct exposure to high winds. The site must be sloped between 2 to 4%, the pile must be done on a moderate to well-drained soil surface, near available water source, and where there is enough room for temporary storage of organic material.
- The average volume of the compost pile should be of 1m³.

When does compost become ready to use?

The composting process is performed over two phases: the first phase is the fermentation process that requires between 7 and 60 days, whereas the second phase consists of the maturation process that can take place in the open air and lasts about 30 days. Ready-to-use compost accounts only for 25 to 40% of the initial volume of the pile. The composting process ends when the individual materials can no longer be identified, the pile resembles dark rich soil, and when the compost looks like dark earth, feels smooth, crumbles through the fingers and smells earthy.

When is compost used?

It is advised to use the compost in the end of February to take advantage of the rain, thus the release of nutrients will be easier and available in spring time when needed by plants.

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Main references:

Composting from A to Z, issued by the Italian Cooperation Agency, the Italian Embassy in Beirut and the COSV, in collaboration with the Ministry of Environment and the Office of the Minister of State for Administrative Reform (OMSAR) (2011)

Remark: This document was elaborated for guidance purposes; the Ministry of Environment does not assume any responsibility or liability for any accident of any kind that may result from a poor implementation or misuse.



Annex 4 to the Circular of the Minister of the Environment No. 7/1 dated 16 November 2017 Positive Environmental Impacts Resulting from Sorting at Source and the Scope of Using Recycled Materials

I- Benefits of sorting at source

The main benefits of sorting at source:

- Contributing to the first section of the international waste management hierarchy which consists of:
 - o Reducing waste,
 - o Reusing waste,
 - o Recycling waste.
- Securing homogenous and high-quality material (low in pollutants) thus contributing to the reduction of recycling cost.
- Contributing to the reduction of the quantity of waste to be transported to sorting centers which might lead to reduction in treatment cost.
- Reducing the quantities of material to be landfilled due to the high percentage of pollutants they contain and which precludes the possibility of recycling them.
- Raising social and environmental awareness related to waste management.

Additionally, the various waste components have different characteristics; thus, the benefits of sorting at source vary from one component to another. These benefits are detailed in paragraphs A to E based on each type of material.

A- Paper Materials

- Paper consist of fibers. When paper is mixed with other waste, it may be subject to cross-contamination by pollutants from organic material and liquid residues (such as oil residues and detergents). Paper fibers absorb these pollutants which undermines their cohesion and prevents its treatment from the pollutants. Thus, it becomes difficult to recycle these materials. Therefore, sorting paper at source increases their recycling value, thus decreasing the quantities to be landfilled.
- Sorting such material at source decreases the quantity of waste transported to the sorting centers, which might lead to a reduction in treatment costs.

B- Plastic Materials

- When mixed with other waste, plastic material may be subject to cross-contamination by organic material and certain chemical residues. This cross-contamination would either deprive the plastic material from their recycling value, or subject them to further cleaning and disinfecting, which would increase the recycling cost. Plastic material that loses its calorific value may eventually end up in landfills.
- Sorting these material at source decreases the quantity of waste transported to the sorting centers, which might lead to a reduction in treatment costs.
- Sorting at source increases the value of plastic material.

C- Metals

- When mixed with other waste, metals may be subject to cross-contamination by organic material and certain chemical residues. This cross-contamination subjects them to further cleaning and disinfecting, which would increase their recycling cost and decrease their value.
- Sorting these material at source decreases the quantity of waste transported to sorting centers, which might lead to a reduction in the treatment cost.
- Sorting at source increases the value of metals.

D- Glass Material

- When mixed with other waste, glass material are subject to cross-contamination by organic material and certain chemical residues. This cross-contamination subjects them to further cleaning and disinfecting, thus, increasing their recycling cost.

- Friction between this material and other solid waste components might cause them to break into smaller pieces, which would make it difficult to sort them, thus increasing the quantity of glass being landfilled. Therefore, sorting these materials at source decreases the quantity of waste transported to sorting centers, which might lead to a reduction in treatment cost.
- Sorting at source increases the value of glass material.

E- Organic Materials

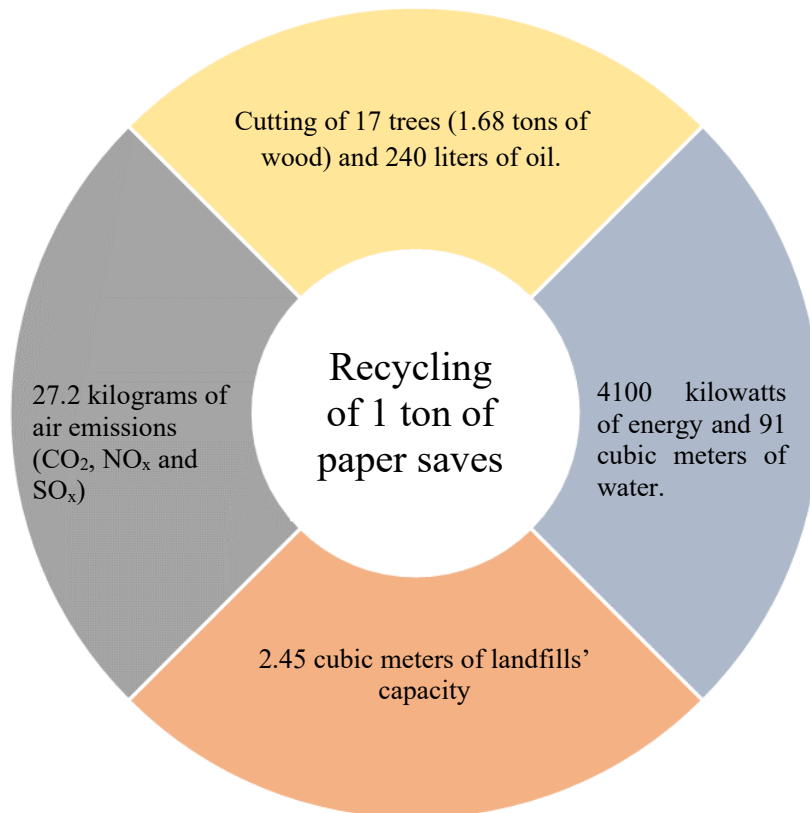
- When mixed with other waste, organic material are subject to cross-contamination by liquid residues (such as oil residues, chemical substances resulting from detergents and batteries). This cross-contamination negatively affects the quality of soil enhancer resulting from composting of organic waste, which might result in preventing using them as soil enhancers in agriculture and opt for landfilling them. Therefore, sorting these materials at source helps improve the quality of soil enhancers resulting from composting of organic waste and decrease the quantity of organic waste being landfilled.
- Sorting at source decreases the quantity of waste transported to sorting centers, which might result in a reduction in treatment costs.

II- Benefits of recycling and scope of use of recycled material

Recycling has several environmental benefits based on each material. Recycled material might be used in many fields as alternative products to replace those manufactured from raw material. Paragraphs (A to E) cover the main benefits resulting from recycling certain solid waste material, as well as their main scope of use.

A- Paper and cardboard

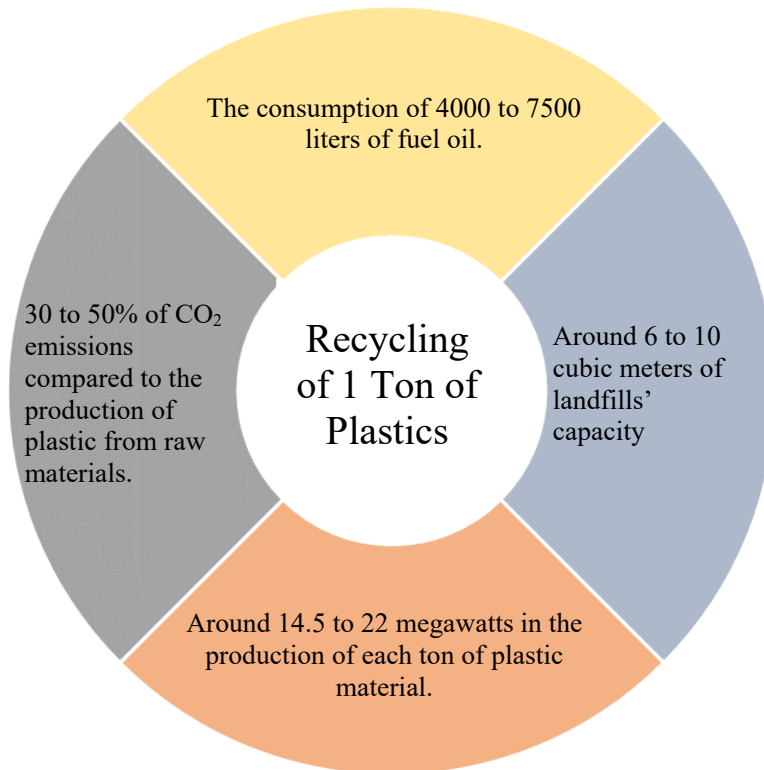
Paper and cardboard material are made of wood.



Scope of use of recycled paper	<ul style="list-style-type: none"> ✚ <u>Office paper</u>: office paper may be recycled to reproduce new office paper (less white in color), tissues, cardboard or newspaper. ✚ <u>Cardboard</u>: cardboard may be recycled to produce various types of cardboard material, in addition to tissues. ✚ <u>Newspaper</u>: Newspaper may be recycled to produce newspapers in addition to tissues. ✚ <u>Tissues</u>: In general, tissues are produced to be used only once before being disposed of. It is not very common to recycle them. ✚ <u>Mixed paper materials</u>: Such materials may be recycled to produce cardboard or tissues. Furthermore, they can be used in construction to produce the following materials: <ul style="list-style-type: none"> ○ A solid compound, made of paper material (80%) and sodium silicate (20%). This compound is highly resistant to fires, and is used in building separation walls instead of fiberboards. ○ Insulating material, made of a mixture of paper material and fire retardants. This type of insulation is known as cellulose insulation. ○ Thick boards similar to stones, made of paper material, glue substances and dyes. This mixture is heated and pressed. It can be used as counters in the kitchen, tables and shops, etc.
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B- Plastic Material

Plastic material are made of petroleum substances.

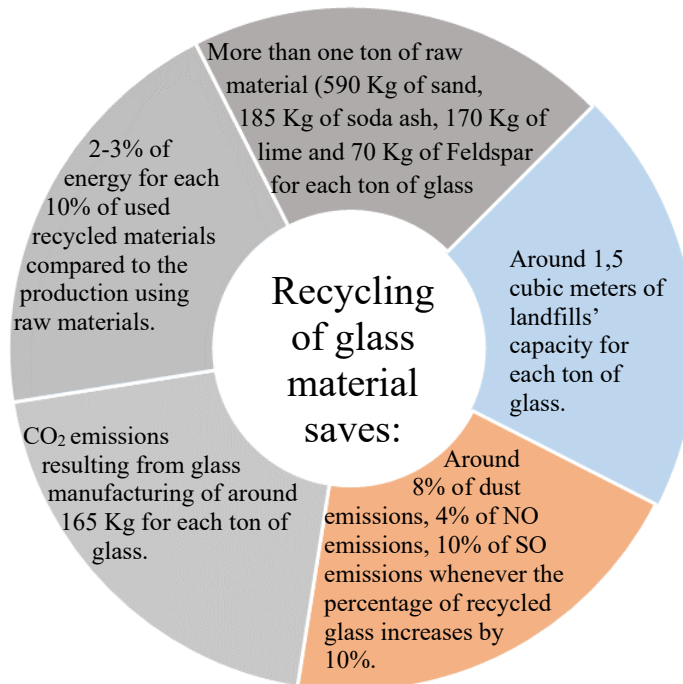


<p>Scope of use of recycled plastics</p>	<ul style="list-style-type: none"> <li data-bbox="440 262 1385 861"> <p>✚ Polyethylene Terephthalate - PET. The recycling of this type of plastic allows its reuse in the following sectors: food, construction, road transportation and clothes.</p> <ul style="list-style-type: none"> <li data-bbox="483 359 1385 674">○ <u>Food sector</u>: PET material shall be disinfected upon its shredding, washing then it is transformed from its state as a polymer to a monomer, before they are reassembled and manufactured. The main food industries where PET can be recycled and reused include: water bottles, soft drink bottles, and butter containers. Additionally, PET may be used in takeaway boxes, after it undergoes special treatment to enhance its resistance to microwave heat waves. For public health safety purposes, it is recommended to limit the recycling of material previously used in food industry to the production of new food material provided that other sources of material included in the recycling process do not exceed 5% of the overall components. <li data-bbox="483 674 1385 768">○ <u>Construction sector</u>: Upon sorting and washing them, PET materials can be recycled to make strapping tapes, cable ducts, construction materials and humidity insulation material. <li data-bbox="483 768 1385 831">○ <u>Road transportation sector</u>: Recycled PET may be used to produce barricades. <li data-bbox="483 831 1385 861">○ <u>Clothing sector</u>: Recycled PET may be used to produce polyester. <li data-bbox="440 926 1385 1430"> <p>✚ High Density Polyethylene - HDPE The recycling of this type of plastic allows its reuse in the following sectors: packaging, construction, road transportation and agriculture. As for the food industry sector, its use is not recommended and each case is assessed separately since HDPE absorbs volatile substances whereas it is recycled at relatively low temperature.</p> <ul style="list-style-type: none"> <li data-bbox="483 1115 1385 1209">○ <u>Packaging sector</u>: Recycled HDPE may be used in household items to keep detergents, in addition to the manufacturing of tables, chairs and plastic boxes. <li data-bbox="483 1209 1385 1304">○ <u>Construction sector</u>: Recycled HDPE can be used instead of wood to build fences, railways, pathways, bridges, public benches, and others, in addition to surface bodies, waste bins and pipes. <li data-bbox="483 1304 1385 1367">○ <u>Road transportation sector</u>: Recycled HDPE may be used to produce barricades, parking blocks and speed bumps. <li data-bbox="483 1367 1385 1430">○ <u>Agriculture sector</u>: Recycle HDPE can be used to make irrigation pipes, livestock barns and planting pots. <li data-bbox="440 1493 1385 1776"> <p>✚ Low Density Polyethylene - LDPE The recycling of this type of plastic allows its reuse in the construction and road transportation sectors, as well as, partial/limited usage within the food industry.</p> <ul style="list-style-type: none"> <li data-bbox="483 1587 1385 1713">○ <u>Food industry sector</u>: Recycled LDPE may be mixed with other plastic materials, such PP, provided that LDPE percentage does not exceed 30% of the mixture in order to produce disposable items, such as plastic knives, cups and soup cups. <li data-bbox="483 1713 1385 1776">○ <u>Construction sector</u>: Recycled LDPE can be used in the manufacturing of boards, tiles, waste bin linings and nylon bags.
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	<ul style="list-style-type: none"> ○ <u>Road transportation sector</u>: Recycled LDPE may be used to produce the upper part of traffic cones, as well as barricades. ✚ Polyvinyl Chloride - PVC The recycling of this type of plastic is very limited, almost limited to the recycling of certain pipes and traffic cones. ✚ Polypropylene - PP The recycling of this type of plastic allows its reuse in the food industry and household items. <ul style="list-style-type: none"> ○ <u>Food industry sector</u>: PP should be disinfected following its shredding and washing before it can be used to make containers (such as yogurt and various food containers), in addition to containers used to heat food using the microwave. ○ <u>Household items</u>: Recycled PP is used to make battery packs, brooms, waste bins and trays. ✚ Polystyrene – PS The recycling of this type of plastic is very limited, almost limited to the construction sector. As for its use in the food industry, it is almost banned due to the risk of styrene, which might migrate to the food. <ul style="list-style-type: none"> ○ <u>Construction sector</u>: Recycled PS can be used in the manufacturing of public benches, vases, plant pots, frames, molds, and concrete.
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C- Glass Materials

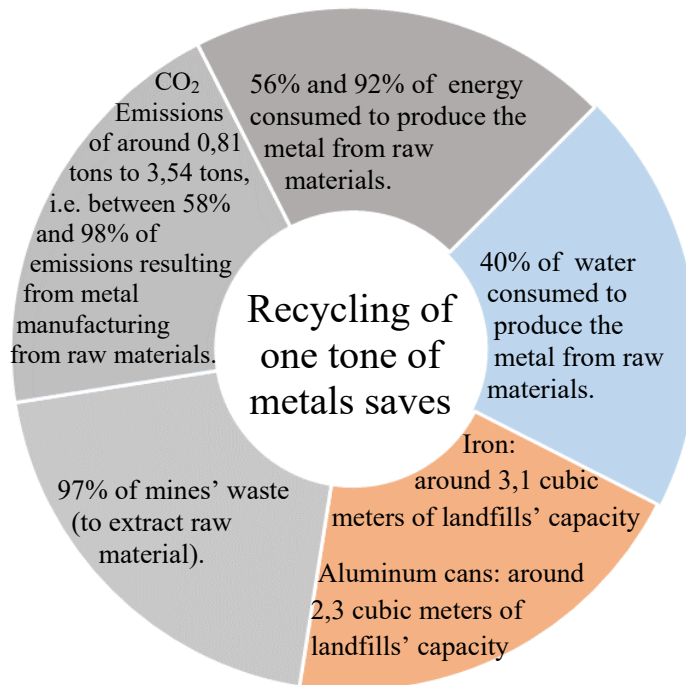
Glass materials are made of sand, lime and soda ash.



<p>Scope of use of recycled glass material</p>	<ul style="list-style-type: none"> ✚ Although it is possible to recycle most types of glass, the different kinds of glass material should be segregated based on their color and composition for the following reasons: <ul style="list-style-type: none"> ○ <u>Color</u>: The color removal technique to recycle glass material differs based on their color; for instance, zinc oxide is used during the first stage to treat brown glass whereas magnesium oxide is used to treat yellowish green glass. ○ <u>Composition</u>: certain glass items contain ceramics and/or chemical substances; therefore, they should be sorted separately since they undergo different recycling techniques given their different composition and melting temperature. The main glass products include: light bulbs, vases, cups, plates, ceramics, mirrors, tubes, laboratory items, window glass, car windows, Pyrex and frosted glass. ✚ Main types of recycled glass items: <ul style="list-style-type: none"> ○ <u>Glass containers</u>: including bottles and jars used to keep drinks, food and chemical material. ○ <u>Flat glass</u>: including window glass, screens and car windows. The manufacturing of such glass items requires high percentages of Magnesium oxide. ○ <u>Lead glass</u>: including glass cups, decanters, certain medical jars and some decoration items. The manufacturing of such glass items requires high percentages of lead oxide and potassium oxide. ○ <u>Borosilicate glass</u>: used in ovens and heat-resistant glass (Pyrex), as well as in laboratory containers and in lighting. This type of glass contains high percentages of silica and Boron oxide (B_2O_3), in addition to a low alkali content. ○ <u>Fiber Glass</u>: used in insulating materials, fiber optics, reinforced plastic (CFRP) and reinforced concrete. The composition of this type of glass varies a lot according to its use. ✚ Reuse of recycle glass in construction <ul style="list-style-type: none"> ○ <u>Roads</u>: Glass materials can be ground to less than 10 mm, mixed with asphalt and gravel and used in road asphalt/paving, provided that the percentage of glass materials do not exceed 20% of gravel, knowing that the commonly used percentage varies between 3 and 6%. Additionally, a part of the glass material may be mixed with gravel in order to build basecourse infrastructure in accordance with the standards and requirements mentioned above. ○ <u>Reflective paints used on highways</u>: Glass material may be ground and mixed with the paints used to paint highway lines to obtain reflective colors. ○ <u>Concrete mix</u>: Glass may be used as a substitute to the sandy component of concrete mix provided that it is ground to less than 2.46 mm and does not replace more than 20% of the total sandy component.
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D- Metals

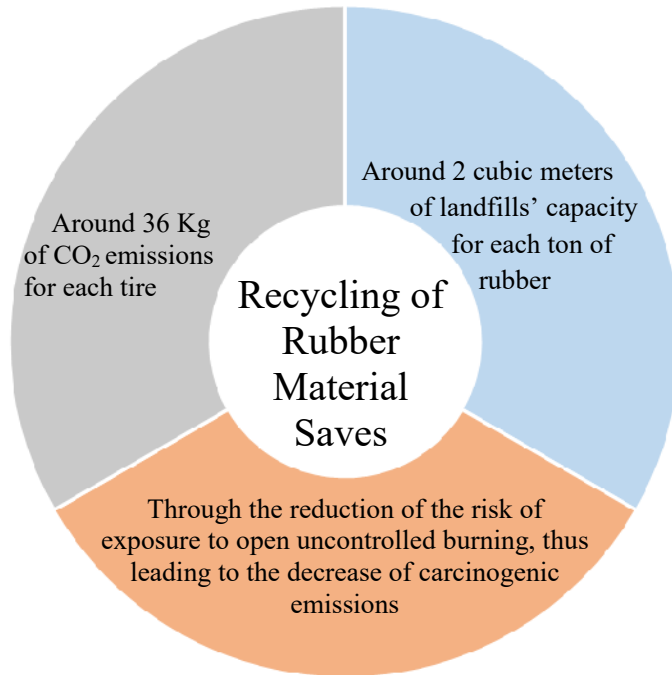
Metals are made of raw materials extracted from the ground.



Scope of use of recycled metals	<ul style="list-style-type: none"> ✚ <u>Food industry sector</u>: Recycled metal is used in the manufacturing of food cans. The main types of metal recycled in this sector include steel and aluminum. ✚ <u>Industrial sector</u>: Recycled metal is used to manufacture rails, cables, columns, in addition to parts of machineries, devices, cars, planes and ships. The main types of metal recycled in this sector include copper, iron, steel, aluminum, nickel and lead. ✚ <u>Construction sector</u>: Recycled metal is used to build bridges, roads, concrete poles, metal poles, beams, metallic railways and ventilation ducts. The main type of metal recycled in this sector include iron, steel and aluminum. ✚ <u>Household/office furniture</u>: Recycled metal is used to make lights, desks, tables, chairs, beds and cutlery (spoons and knives). The main type of metal recycled in this sector include iron, copper, steel, stainless steel, nickel and aluminum.
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E- Rubber Materials

Rubber materials are made of black carbon. The most common rubber item is tires.



Scope of use of recycled rubber material	<ul style="list-style-type: none"> ✚ Reuse of rubber without recycling. Vehicle tires are the main items used as follows: <ul style="list-style-type: none"> ○ Tree protection ○ Shock absorbers ○ Parks decoration ○ Side road separator ○ Fences ○ Alternative fuel to charcoal in heavy industry ✚ Recycling to produce other rubber material. For example: <ul style="list-style-type: none"> ○ Tires for small vehicles ○ Car mats ○ Rubber mats for children playgrounds ○ Plant pots ○ Mulch ○ Gloves ○ Rubber bumps ○ Rubber pipes ○ Outdoor benches ○ Artificial floor for sports arena ○ Rubber asphalt ○ Insulating material ✚ Re-processing it to produce other materials. The main technique used in this field is pyrolysis which uses heat to break down the rubber material into carbon black, gaseous substances and liquid substances. The carbon black may be used in the manufacturing of other rubber products. As for gaseous and liquid substances, they may be used to produce energy or as alternative fuel.
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